

## **LISTING OF CLAIMS:**

*The following listing of claims replaces all prior versions and listings of the claims:*

**Claim 28 (Currently Amended):** A network node for a bidirectional ring topology network having first and second working rings and first and second protection rings, wherein each of said working rings and each of said protection rings has an insertion point for inserting an add-up signal from an external source site into the ring and a termination point for extracting a signal from the ring onto an external sink site, said network node serving as one of said insertion and termination points, the network node comprising:

- a first demultiplexer for receiving a multiplex signal from one of said working rings for producing a first drop-off signal;

- a first multiplexer for multiplexing an add-up signal from the external source site onto said one working ring;

- a first protection switch connected to said external source site;

- a first path switch for exclusively establishing a connection between said first demultiplexer and said first multiplexer or between said first multiplexer and said first protection switch;

- a second demultiplexer for receiving a multiplex signal from one of said protection rings for producing a second drop-off signal;

- a second multiplexer for multiplexing the add-up signal from the external source site onto said one protection ring;

a second protection switch connected to said external sink site;

a second path switch for exclusively establishing a connection between said second demultiplexer and said second multiplexer or between said second multiplexer and said second protection switch; and

control circuitry for monitoring said working rings and controlling said first and second protection switches, and controlling, if said network node serves as said insertion point, said first protection switch so that said add-up signal from the external source site is coupled via said first path switch to said first multiplexer when no failure is detected in said working rings and is coupled via said second path switch to said second multiplexer when a failure is detected in said working rings, and

controlling, if said network node serves as said termination point, said second protection switch so that said first drop-off signal from said first demultiplexer is coupled to said external sink site when no failure is detected in said working rings and said second drop-off signal from the second demultiplexer is coupled to said external sink site, instead of the first drop-off signal, when a failure is detected in said working rings.

**Claim 29 (Original):** The network node of claim 28, wherein said first protection switch includes first and second output ports associated with said first and second working rings and third and fourth output ports associated with said first and second protection rings, and in that said first protection switch is responsive to a control signal from said control circuitry for coupling two add-up signals to first and second working rings via said first and second output ports respectively and coupling one of said two add-up signals to one of said first and second protection rings via one of the third and fourth ports,

wherein said second protection switch includes first and second input ports associated with said first and second working rings and third and fourth input ports associated with said first and second protection rings, and in that said second protection switch is responsive to a control signal from said control circuitry for receiving two drop-off signals from said first and second working rings via said first and second input ports and receiving each one of the drop-off signals from one of the first and second protection rings via said third and fourth input ports.

**Claim 30 (Original):** The network node of claim 29, wherein said first protection switch comprises:

first and second optical couplers respectively connected to said first and second working rings via said first and second output ports, and third and fourth optical couplers respectively connected to said first and second protection rings via said third and fourth output ports; and

first, second, third and fourth optical switches, said first optical switch having outputs respectively coupled to said first, third and fourth optical couplers, said second optical switch having outputs respectively coupled to said second, third and fourth optical couplers, said third optical switch having outputs coupled respectively to said first and third optical couplers, and said fourth optical switch having outputs respectively coupled to said second and fourth optical couplers.

**Claim 31 (Original):** The network node of claim 30, wherein said second protection switch comprises:

first and second optical couplers respectively connected to said first and second

working rings via said first and second input ports, and third and fourth optical couplers respectively connected to said first and second protection rings via said third and fourth input ports, and

first, second, third and fourth optical switches, said first optical switch having inputs respectively coupled to said first, third and fourth optical couplers, said second optical switch having inputs respectively coupled to said second, third and fourth optical couplers, said third optical switch having inputs coupled respectively to said first and third optical couplers, and said fourth optical switch having inputs respectively coupled to said second and fourth optical couplers.

**Claim 32 (Original):** The network node of claim 31, wherein said first protection switch further comprises:

a fifth optical coupler having outputs respectively connected to said first and third optical switches; and

a sixth optical coupler having outputs respectively connected to said second and fourth optical switches.

**Claim 33 (Original):** The network node of claim 31, wherein said second protection switch further comprises:

a fifth optical coupler having inputs respectively connected to said first and third optical switches; and

a sixth optical coupler having inputs respectively connected to said second and fourth optical switches.